*A building manager oversees hundreds of security cameras and electronic doorways. Unbeknownst to him, the flow of data to and from a critical network node stops. Fifteen minutes later, 10 cameras and 20 doorways shut down. Here is a product that could instantly alert the manager when a failure occurs.*

NodeWizard®

How It Helps: NodeWizard software monitors critical elements of a distributed network, allowing operators to identify problems and initiate repairs before any loss of service occurs. Unlike competing products, the software manages not just voice networks and high-speed data networks but also video networks. It can manage as many as eight networks, and each network can include as many as 256 nodes. A user-friendly graphical interface provides information to the network operator in a concise, easy-to-understand format containing topologic, tabular, and shelf views of the network. Color-coded network summary information and simple drill-down navigation tools provide fast access to critical status information. And, with just a few mouse clicks, the operator can execute remote commands for provisioning and cross-connect configuration.

How It Works: The NodeWizard Element Manager software is a network management and communication tool that allows remote monitoring and control of a system's fiber-optic nodes. The software consists of a Windows®-based application that interfaces to one or more networks via a serial RS-232 or an Ethernet network link. Using fuzzy cognitive mapping (FCM) technology, it polls equipment transponder units in each node of a managed network. The status values are stored in a database on the NodeWizard server. Comparisons to alarm thresholds automatically trigger alarm notifications to the various displays. An alarm summary table provides an overview of all acknowledged and unacknowledged alarms, color-coded by severity. Alarms also can be sent via the Internet to higher-level network management systems using a simple network management protocol agent.
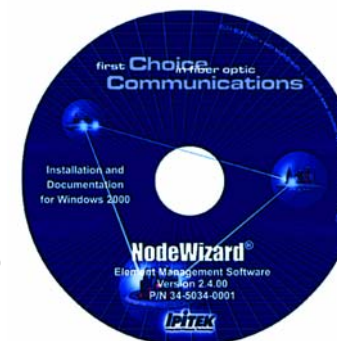
How Much It Will Cost: The cost of this software depends on the desired system architecture and the number of nodes to be managed.

When It Will Be Ready: The software is available now. Clients include a South American mining operation, which uses the system to monitor mining equipment and cameras. The system also would work well in industries such as telecommunication and cable television, in which companies must manage a network of devices scattered across many locations. In addition, the technology could help cable companies monitor the infrastructure needed to deliver movies-on-demand to subscribers' homes.

Who Is Working On It: IPITEK, the result of a merger in 1999 between TACAN Corporation and Tetra Tech Data Systems, developed this product. IPITEK produces optical networking solutions for broadband, digital transport, and network communications. Its products, aimed largely at communications companies, include fiber-optic systems and components, as well as other broadband communications products and advanced sensor equipment. The company also produces optical transceivers and components. IPITEK employs 175 people and occupies about 100,000 square feet of office space and lab/development facilities. For more information, contact Dr. James H. Bechtel of IPITEK at (760) 438-1010 or jbechtel@ipitek.com. The company Web site is www.ipitek.com.

MDA Origins
Through SBIR Phase I and II contracts between 1996 and 1998, BMDO funded the development of FCM technology through TACAN. FCMs have significant advantages over conventional expert systems for battle control and especially for digital network management. FCMs permit the synthesis of knowledge acquired from different sources and also allow adaptive refinement through supervised or unsupervised learning.